

Remarks

Claims 1 and 5 have been amended.

Claims 1 and 4-15 remain rejected under 35 USC §103(a) over Tashiro. The rejection states that Tashiro teaches a method of stirring the solution in which electromagnets move magnetic particles and maintain the particles in the upper portion of the reaction vessel and points to Fig. 2 as support.

The Applicants note with appreciation the Examiner Interview of September 27, 2011 between the Examiner and the Applicants' representative, Lisa Lint. The rejection under §103 over Tashiro and amendments to Claims 1 and 5 were discussed. The amendments discussed in the interview are commensurate with those made in this Response.

In particular, amendment of Claim 1 to recite a "carrier and/or a container which have convex-concave structures," and amendment of Claim 5 to recite the relative width dimensions of the structures in reference to the width of the particles were discussed. The Applicants respectfully submit that the amended claims are not obvious in view of Tashiro. Details follow.

Tashiro discloses a reaction vessel comprising two opposing plates (for example, slide glass) with DNA immobilized on the surface of one or both of the plates and a spacer (for example, an O-ring) permitting the sealing of reaction solution between the two plates. As disclosed by Tashiro, the surface of the plates comprising the reaction vessel is flat, featureless, and otherwise devoid of texture. Indeed, the rejection concedes that Tashiro fails to teach that the "carrier and/or container have structures" that prevent fine particles or air bubbles from coming into contact with the selective binding substance-immobilized surface. *See*, page 4 of the Official Action.

Tashiro does not teach or suggest modification of the flat, featureless surface of the plates comprising the reaction vessel to include any structure, including convex-concave structures. Accordingly, one skilled in the art in view of Tashiro would not be motivated to modify Tashiro's reaction vessel in any way, including introducing a "carrier and/or a container which have convex-concave structures," such that the particles do not contact the selective binding substance-immobilized surface.

Moreover, the Applicants respectfully submit that Tashiro does not explicitly teach that the particles are (or even should be) maintained in the upper portion of the reaction vessel such that they do not physically contact the DNA stamped on the surface of the lower glass plate. While the

electromagnets may be moved “back and forth in the upper portion of the hybridization cassette” to displace the magnetic particles (*see*, paragraph [0038]), this does not necessarily maintain the magnetic particles completely within the upper portion of the reaction vessel. Fig. 2 is identified as a “conceptual drawing” of the structure of Tashiro’s reaction vessel (*see*, paragraph [0014] of Tashiro), but one skilled in the art would not reasonably expect that the diagram accurately captures a real-world example.

Indeed, in sharp contrast, Tashiro contemplates that the magnetic particles will inevitably come into physical contact with the immobilized DNA. That Tashiro suggests of coating the particles with resin to avoid reaction between the particles and DNA evidences that it was reasonably expected the particles would physically contact the DNA immobilized surface. *See*, paragraph [0022] of Tashiro.

However, aside from suggesting the use of resin-coated particles to prevent chemical reaction, Tashiro is silent as to any problem associated with physical contact between the particles and immobilized substance. The problem of physical contact causing reduced fluorescence intensity was recognized by the Applicants (*see*, Comparative Example 6, page 36, of the Applicants’ specification) and a solution offered in the claimed method. Tashiro does not recognize the problem or offer a solution. Accordingly, Tashiro does not provide any motivation to alter the surface structure of the container and/or carrier to have convex-concave structures such that the particles do not contact the selective binding substance-immobilized surface.

Furthermore, for the sake of clarity, the Applicants note that Fig. 2 does not teach or suggest a “carrier and/or a container which have convex-concave structures” as recited in Claim 1. As noted above, Tashiro teaches that the plates forming the reaction vessel are flat and featureless. The rounded shapes depicted in Fig. 2 representing stamped DNA do not satisfy Claim 1 because they do not result in a “carrier and/or a container *which have* convex-concave structures.” As noted above, Fig. 2 is merely a “conceptual drawing,” and one skilled in the art would not understand it as a precise depiction of the reaction vessel and immobilized DNA. Moreover, the DNA immobilized on the surface of the plate would not be a “structure such that the particles do not contact the selective binding substance-immobilized surface.” The particles would be able to contact the DNA of the semi-circles shown in Fig. 2, indeed, possibly with greater frequency.

Furthermore, the Applicants respectfully submit that Tashiro does not teach or suggest that the “minimum width of the fine particles is greater than a minimum distance between the selective binding substance-immobilized surface and the container.” Indeed, because Tashiro teaches that the plates of the reaction vessel have a flat and featureless surface, the features recited in Claim 5 would render Tashiro inoperable. Accordingly, one skilled in the art would not be motivated to modify Tashiro to obtain the method recited in Claim 5.

In contrast, the Applicants provide a container, such as in Figs. 1 and 2 of the Applicants’ specification, which provides for a method of stirring a solution with particles wherein the particles do not contact the selective binding substance-immobilized surface. As shown in cross-sectional view, the container and carrier can allow particles to be retained within structures, such as convex-concave structures. Due to the greater width of the particles relative to the space between the selective binding substance-immobilized surface and container, the particles can thus move in the reaction vessel without exiting the convex structure and contacting the selective binding substance-immobilized surface.

Accordingly, the Applicants respectfully submit that the rejected claims are not obvious in view of Tashiro because there is no motivation to modify Tashiro to achieve the claimed subject matter. Reconsideration and withdrawal of the rejection are respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



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